

**Land Use Control Remedial Design  
for  
Site 3 – Chlorinated Solvent Groundwater Plume  
and  
Southern Flight Test Area**

**Naval Weapons Industrial Reserve Plant  
Bedford, Massachusetts**



**Naval Facilities Engineering Command  
Mid-Atlantic**

**Contract No. N40085-12-D-1717  
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**Revision 1**

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## **1.0 INTRODUCTION**

This document constitutes the Land Use Control (LUC) Remedial Design (RD) for Site 3 (Chlorinated Solvent Groundwater Plume) and the Southern Flight Test Area (SFTA) at Naval Weapons Industrial Reserve Plant (NWIRP) Bedford, located in Bedford, Massachusetts. This document was prepared by the Department of the Navy's Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic. NAVFAC Mid-Atlantic is the lead agency conducting the evaluation and cleanup of NWIRP Bedford. This LUC RD initially was developed in 2011 to address the LUC implementation actions for Site 3 in accordance with the Site 3 Record of Decision (ROD) of 2010 and the NWIRP Bedford Federal Facilities Agreement (FFA) of 1999. The LUC RD is hereby revised in 2014 to incorporate the NWIRP Bedford property known as the SFTA, in accordance with the 2014 Explanation of Significant Differences (ESD) to the Site 3 ROD. This revision does not alter the overall LUC RD for Site 3, but rather expands it to include the additional SFTA property.

This LUC RD is considered a primary document in accordance with the FFA and has been prepared in accordance with the Navy Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions (the Navy Principles), as agreed between the U.S. Environmental Protection Agency (EPA) and the Department of Defense (DoD, 2003).

## **2.0 BACKGROUND AND SITE DESCRIPTIONS**

NWIRP Bedford is a 46-acre facility located in the Town of Bedford, Middlesex County, Massachusetts (Figure 1). NWIRP Bedford is owned by the U.S. Government (i.e., the Navy), and was historically operated by Raytheon Company of Waltham, Massachusetts. The mission of NWIRP Bedford was to design, fabricate, and test prototype weapons equipment such as missile guidance and control systems. Activities at NWIRP Bedford were historically conducted in two main structures: the Components Laboratory to the north of Hartwell Road, and the Flight Test Facility to the south of Hartwell Road. Raytheon conducted its operations at NWIRP Bedford from the facility's inception in the mid-1950s until December 2000. The facility has remained vacant since that time.

In 1994, NWIRP Bedford was placed on the National Priorities List (NPL), indicating that the property was a federal priority for environmental investigation and cleanup. Since that time, the Navy has conducted environmental studies and activities at NWIRP Bedford in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan, which is consistent with the Navy's Environmental Restoration Program.

### **2.1 Site 3**

Site 3, the Chlorinated Solvent Groundwater Plume, is associated with releases of chlorinated volatile organic compounds (CVOCs) in the Northern Activity of NWIRP Bedford (i.e., the portion of the facility situated north of Hartwell Road). Site 3 consists of a subsurface source area by the Components Laboratory loading docks where high CVOC concentrations are present in soil and groundwater. A well-defined, dissolved-phase plume of CVOCs in groundwater extends from the source area, primarily in a west/northwesterly direction across NWIRP Bedford and into an off-property wetland area (private property); however, because the source area is located atop Hartwells Hill, some radial flow of groundwater also occurs.

The Site 3 plume is believed to be the result of various, relatively small, random releases of solvents, and not from a deliberate practice of waste disposal. No records of solvent spills are available except for a spill in 1976 of approximately 55 gallons from a ruptured storage drum on the northern side of the Components Laboratory. The spill reportedly emptied into a nearby storm drain, where it entered the ground at the storm drain discharge in a grassy area of the northwestern portion of Hartwells Hill. It is likely that additional similar releases have occurred at the Components Laboratory loading dock, or at other support buildings in the northern portion of NWIRP Bedford, during the use, storage, and handling of solvents in this area.

In 1990 and 2000, respectively, the Navy completed the Phase 1 (Dames & Moore) and Phase II (Tetra Tech) Remedial Investigations for NWIRP Bedford, which included the Site 3 area. Potentially unacceptable human health risks were identified for the use of Site 3 groundwater as a drinking water supply due to the elevated CVOC concentrations. The predominant contaminant of concern (COC) in groundwater is trichloroethene (TCE). The other Site 3 COCs are 1,1-dichloroethene (DCE), 1,1-dichloroethane (DCA), 1,2-DCA, cis-1,2-DCE, 1,1,2-trichloroethane (TCA), tetrachloroethene (PCE), and vinyl chloride.

To prevent the migration of the CVOC plume from NWIRP Bedford to Elm Brook and the associated wetlands (and the town's currently inactive water supply well field beyond that), the Navy operated a groundwater pump-and-treat system as an Interim Remedial Action (IRA) at the western property line since 1997. The IRA included a semi-annual groundwater sampling program. In 2003, the Navy conducted an Electrical Resistance Heating (ERH) pilot study which reduced CVOC concentrations in soil and groundwater in a portion of the Site 3 source area. The Navy issued a final Feasibility Study in June 2010 (Tetra Tech, 2010) and signed the ROD in September 2010 (Navy, 2010).

The selected remedy in the Site 3 ROD includes the following components:

- In-situ enhanced bioremediation of the source area.
- Continued operation of the existing groundwater pump-and-treat system by the property line for plume capture and control.
- Monitored natural attenuation (MNA)/ long-term monitoring (LTM) of the residual COC concentrations in groundwater.
- LUCs prohibiting the use of site groundwater, prohibiting residential redevelopment of the site, restricting site building occupancy (includes annual compliance inspection and reporting), and maintaining the remedial action components (e.g., pump-and-treat system and monitoring well network).
- Five-year reviews.

Following signature of the ROD in 2010, the Navy designed and constructed the full-scale remediation system for Site 3, which commenced operation in November 2012. Through the ESD, the last three of the above-listed remedial action components were expanded to include the SFTA, as described below.

## **2.2 Southern Flight Test Area**

The SFTA is associated with groundwater contaminated with TCE in the Southern Activity of NWIRP Bedford (i.e., the portion of the facility situated south of Hartwell Road). The SFTA property abuts Hanscom Field (Hanscom Air Force Base) to the south. The SFTA has been vacant since 2000, and most of the buildings have been decommissioned and demolished since that time. The Navy's environmental investigations at the SFTA have shown that residual TCE is present in bedrock groundwater at concentrations exceeding cleanup goals, but that natural attenuation of the TCE is occurring at an acceptable rate to achieve those goals within a reasonable timeframe. The original source of the contamination is uncertain; however, no remaining source of TCE has been found at the site. The decreases in TCE concentrations are likely due to a combination of natural attenuation processes in SFTA groundwater and the effects of a groundwater extraction system operated by the Air Force to the east of the SFTA to address a separate area of groundwater contamination (Hanscom Operable Unit 1). The Air Force's groundwater remediation system at the adjacent Hanscom Field has been operating since 1991 and likely influences the direction and the velocity of groundwater flow in the SFTA. The extraction system is believed to be capturing groundwater that flows from the SFTA site.

The Navy has been conducting semi-annual groundwater monitoring at the SFTA property since 2002. In 2008, the Navy and the Air Force signed a Memorandum of Understanding (MOU) to ensure continued

groundwater monitoring and sharing of information for the SFTA and Air Force sites. In accordance with the MOU and the ESD, the Navy's current monitoring program at the SFTA includes groundwater sample analyses for the identified COC, TCE, as well as various MNA indicators (e.g., geochemical parameters and TCE degradation products).

In March 2014, the Navy and EPA signed the ESD to the ROD, with concurrence by the Massachusetts Department of Environmental Protection (MassDEP). The ESD documented a significant change to the remedy established in the ROD, namely, expanding the Site 3 remedial action to include the additional SFTA property to the south, where similar groundwater contamination was identified. The expanded remedial action includes:

- MNA/LTM of TCE in bedrock groundwater at the SFTA
- LUCs at the SFTA to control site use and to prevent exposure to TCE in groundwater
- Five-year reviews that include the SFTA

### **3.0 LAND USE CONTROLS**

LUCs are used at sites where contaminants are left in place at levels that do not allow for unlimited use and unrestricted exposure. The LUCs ensure that any remaining COCs do not pose an unacceptable risk to human health and the environment. LUCs can consist of institutional controls and/or engineering controls. Institutional controls, such as restrictions, notifications, etc., are typically legal documents in the form of deed restrictions, easements, and restrictive covenants, and in the case of an active military base/facility, can consist of base instructions, notations on installation land use plans, or similar instruments. In the form of a legal document, the institutional controls will run with the land. Engineering controls are typically barriers, such as a fence.

The Site 3 ROD and ESD selected LUCs, specifically institutional controls, as a component of the final remedy for Site 3 and the SFTA, to control or restrict certain types of property uses. The LUCs included in the selected remedy will be maintained until concentrations of hazardous substances have been reduced to levels that allow for unlimited use and unrestricted exposure, as determined by the groundwater monitoring program at Site 3 and the SFTA. The following are the Site 3 and SFTA LUC performance objectives, per the ROD (Navy, 2010) and ESD (Navy, 2014):

#### Site 3

- Prevent use of Site 3 groundwater as a drinking water supply until COC concentrations in groundwater achieve cleanup goals.
- Prevent occupancy of current and future Site 3 structures until COC concentrations allow for industrial use of the property.
- Prevent residential development of the Site 3 area until COC concentrations allow for unlimited use and unrestricted exposure.
- Maintain the integrity of the current or future remedial and monitoring systems, such as extraction and treatment wells, monitoring wells, and in-situ enhanced bioremediation.

#### SFTA

- Prevent use of SFTA groundwater as a drinking water supply until TCE concentrations in groundwater achieve the cleanup goal.

- Prevent occupancy of current and future SFTA structures until it can be demonstrated that there are no unacceptable risks associated with vapor intrusion of TCE from SFTA groundwater to indoor air.
  - *Note: The Navy has satisfied this performance objective by conducting a vapor intrusion evaluation at the SFTA in 2013. The evaluation of soil gas samples collected from the site demonstrated that there are no unacceptable risks associated with vapor intrusion of TCE from SFTA groundwater to indoor air; therefore, in accordance with the Site 3 ROD and ESD, there is no requirement for a LUC that prevents occupancy of structures at the SFTA (Tetra Tech, 2013). EPA and MassDEP concur with this finding.*
- Prevent residential development of the SFTA area until it is demonstrated that soil and groundwater conditions allow for unlimited use and unrestricted exposure.
- Maintain the integrity of groundwater monitoring wells at the SFTA.

The institutional controls will ensure that the above LUC performance objectives are met. Figure 2 shows the approximate areas over which the LUCs apply to prevent human exposure to contaminated media. These areas are referred to in this LUC RD as the “Site 3 LUC Area” and the “SFTA LUC Area”.

The LUCs established for the Site 3 LUC Area and the SFTA LUC Area include the set of restrictions defined below. These restrictions will be imposed on the site property to ensure the LUC performance objectives are met.

**The following activities and uses are inconsistent with the Site 3 and SFTA LUC performance objectives and are prohibited.**

- Installation of groundwater supply (extraction) wells at Site 3/SFTA, including public and private drinking water wells and irrigation wells.
- Any use of groundwater as potable (drinking water) at Site 3/SFTA.
- Occupancy of current and future structures at Site 3 prior to confirmation via CERCLA risk assessment that vapor intrusion from Site 3 poses no unacceptable risks.
- Redevelopment of property for residential use at Site 3/SFTA.
- Any use or activity that would interfere with the implementation, effectiveness, integrity, operation, or maintenance of the required remedy components at Site 3/SFTA. The locations of remedy components for Site 3 and the SFTA (e.g., monitoring wells) are shown on Figures 3 and 4, respectively.

**The following activities and uses are consistent with the Site 3 and SFTA LUC performance objectives and will be allowed in the Site 3 LUC Area and the SFTA LUC Area shown on Figure 2:**

- Remedy operation and maintenance (O&M) activities conducted in accordance with the approved Sampling and Analysis Plan (SAP) or other approved work plan to provide for the sampling, inspection, and installation of groundwater monitoring wells or other O&M actions.
- Environmental investigations and/or remedial actions conducted in accordance with an approved work plan.
- Vehicular and pedestrian traffic.
- Facility maintenance activities such as snow plowing, brush clearing, pest control, paving, and utility repair.

- Construction activities relating to the industrial use of the property, such as excavation and building repair, demolition, and construction.
- Equipment storage, including vehicle parking.
- Continuation of current private property use within the Site 3 LUC Area as undeveloped wetland and wooded land.
- Installation of any other systems to ensure that the remedial action remains effective and is protective of human health and the environment.

Implementation actions to be taken to ensure that the LUC objectives are met are discussed in the following section. Section 4.0 also defines the required notifications and authorizations, and the roles and responsibilities for implementing the actions.

#### **4.0 LAND USE CONTROL IMPLEMENTATION ACTIONS**

Pursuant to the ROD and the ESD, the Navy is responsible for implementing, inspecting, reporting, and enforcing the institutional controls in accordance with this LUC RD. For purposes of this LUC RD, the term "implementation actions" means actions to implement, operate, maintain, and enforce the LUC component of the remedy. The Navy will perform all short- and long-term implementation actions at Site 3 and the SFTA per *The Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions* (DoD, 2003), the FFA, the ROD, the ESD, and applicable Navy directives. The Navy may in the future delegate or transfer authority to conduct these actions to another entity as part of property transfer agreements (i.e., deed).

As set forth in this LUC RD, the following implementation actions will be performed to ensure that the LUC objectives are met in accordance with the FFA, the ROD, and the ESD:

1. Prepare a map defining the Site 3 LUC Area boundaries and the SFTA LUC Area boundaries. Depict on this map the location and boundaries of Site 3 and the SFTA, and the extent of the areas over which the LUCs will apply (Figure 2). Indicate where LUCs have been imposed and annotate LUCs in the Navy Geographic Information System (GIS) database and real estate summary map(s) for the installation, and follow LUC-related procedures pertaining to ground-disturbing activity and changes in land use, as per Commander, Navy Region, Mid-Atlantic Instruction 5090.2, *Installation Restoration; Land Use Controls at Navy Region, Mid-Atlantic Installations; Establishment and Maintenance*, as amended (Appendix A). The Navy will notify EPA and the Commonwealth of Massachusetts in advance of any changes to internal procedural instructions that would impact the effectiveness of the LUCs.
2. Submit a copy of the map on Figure 2 to the land record offices of the Town of Bedford, Massachusetts, and a listing of LUCs that have been imposed, for the limited purpose of providing public notice of the environmental conditions of and limitations on the use of property. Additionally, copies of this map will be provided to EPA and the Commonwealth of Massachusetts.
3. Monitor compliance with the LUCs. LUC monitoring will be coordinated with the O&M and groundwater monitoring programs. LUC monitoring will be conducted by the Navy to verify LUCs are being properly implemented and that the LUC objectives are being met. The LUC monitoring results will be provided to the EPA Region 1 and the Commonwealth of Massachusetts annually. The LUC implementation actions to be conducted as part of the monitoring are summarized in Table 1. LUC compliance inspections will be conducted on an annual basis unless the frequency is reduced by agreement with the Navy, EPA, and the Commonwealth of Massachusetts. Checklists to be used for Site 3 and the SFTA during LUC inspections are provided in Appendix B.
4. Report and notify regulatory agencies. The notification requirements are summarized in Table 1 and include the following:

- a. Notify EPA Region 1 and the Commonwealth of Massachusetts 45 days in advance of any proposed change in land use that would require modifications to the LUCs to remain consistent with the LUC objectives or the selected remedy. The notice shall describe how the LUCs will be changed and mechanisms by which the new LUCs will be implemented to maintain the protectiveness of the remedy.
  - b. Notify EPA Region 1 and the Commonwealth of Massachusetts by telephone and by e-mail as soon as practicable, but within 10 working days, after discovery of any activity that is inconsistent with the LUC objectives or use restrictions, or any other action that may interfere with the effectiveness of the LUCs. Notify EPA Region 1 and the Commonwealth of Massachusetts regarding how the breach will be or has been addressed within 10 days of sending EPA Region 1 and the Commonwealth of Massachusetts the discovery notification of the breach activity. For more complex breach situations, a telephone call within this 10-day period among Navy, EPA, and the Commonwealth of Massachusetts to discuss options for addressing the breach will be considered sufficient to meet this notification requirement. Furthermore, any activity that is inconsistent with the LUC objectives or use restrictions, or any other action that may interfere with the effectiveness of the LUCs will be addressed as soon as practicable, but in no case will the process be initiated later than 10 days after the Navy becomes aware of the breach.
  - c. Notify the EPA Region 1 and the Commonwealth of Massachusetts in writing at least six months prior to any anticipated transfer or sale of the property subject to LUCs out of Navy custody and control, including any federal-to-federal transfer, so that EPA Region 1 and the Commonwealth of Massachusetts can be involved in discussion with the Navy on the appropriate provisions to be included in the transfer terms and conveyance documents to maintain effective LUCs. If it is not possible for the Navy to notify EPA Region 1 and the Commonwealth of Massachusetts at least six months prior, the Navy will make this notification as soon as possible, but no later than 60 days before the transfer or sale of any property subject to LUCs. The Navy shall provide a copy of the executed deed or transfer documents to EPA Region 1 and the Commonwealth of Massachusetts.
  - d. Submit reports of annual monitoring. LUC compliance monitoring shall be conducted annually and the results submitted to the EPA Region 1, the Commonwealth of Massachusetts, and the Town of Bedford Board of Health. The annual reports will be used in preparation of the five year reviews to evaluate the effectiveness of the remedy. The LUCs portion of the annual report will evaluate the status of the LUCs and how any LUCs deficiencies or inconsistent uses have been addressed. The LUCs portion of the annual report will also address whether Navy instructions remain current in regards to LUC enforcement, and whether use of the property has conformed with such restrictions and controls.
5. Obtain EPA Region 1 concurrence, in consultation with the Commonwealth of Massachusetts, prior to modifying or terminating the LUCs or implementation actions. The Navy or other entity shall seek prior concurrence from EPA Region 1, in consultation with the Commonwealth of Massachusetts, before taking any anticipated action that may disrupt the effectiveness of the LUCs or before taking any action that may alter or negate the need for LUCs.
  6. Evaluate the effectiveness of LUCs as part of each five-year review. Site remedy reviews are required by the CERCLA and the National Contingency Plan, as specified by the Site 3 ROD and the ESD. The first five-year review will be completed in 2014 and will include an evaluation of the Site 3 and SFTA remedy. Five-year reviews will be submitted to EPA Region 1 and the Commonwealth of Massachusetts for review per the FFA.
  7. For the private properties within the Site 3 LUC boundary, continue to coordinate with the Town of Bedford Board of Health and monitor the Town's implementation of the municipal Code of Health Regulations which control the installation and use of private water wells. Also continue to coordinate with the Town to monitor any proposal to develop for residential use any of the privately-owned



property within the Site 3 LUC Area. In this instance, the Navy will then confer with EPA Region 1 and the Commonwealth of Massachusetts to determine what further actions may be necessary, if any, to protect human health and the environment at that time.

Should the Navy fail to complete a required LUC implementation action, EPA shall notify the Navy Remedial Project Manager (RPM) and seek immediate action. If the Navy fails to complete a required LUC implementation action within a reasonable time of being so notified, EPA may notify the Deputy Assistant Secretary of the Navy (Environment), who will ensure that necessary action is taken.

Should a subsequent owner of or a third party at the Site 3 property or the SFTA property fail to complete a required LUC implementation action for which such owner or party is responsible, EPA and the Navy will consult on the appropriate enforcement action. If after the property has been transferred, the Navy fails to complete a required LUC implementation for which it is responsible, EPA will notify the Navy RPM or designated project manager, per Section XIV in the NWIRP Bedford FFA. If necessary, EPA may notify the Deputy Assistant Secretary of the Navy (Environment), who will ensure that necessary corrective action is taken.

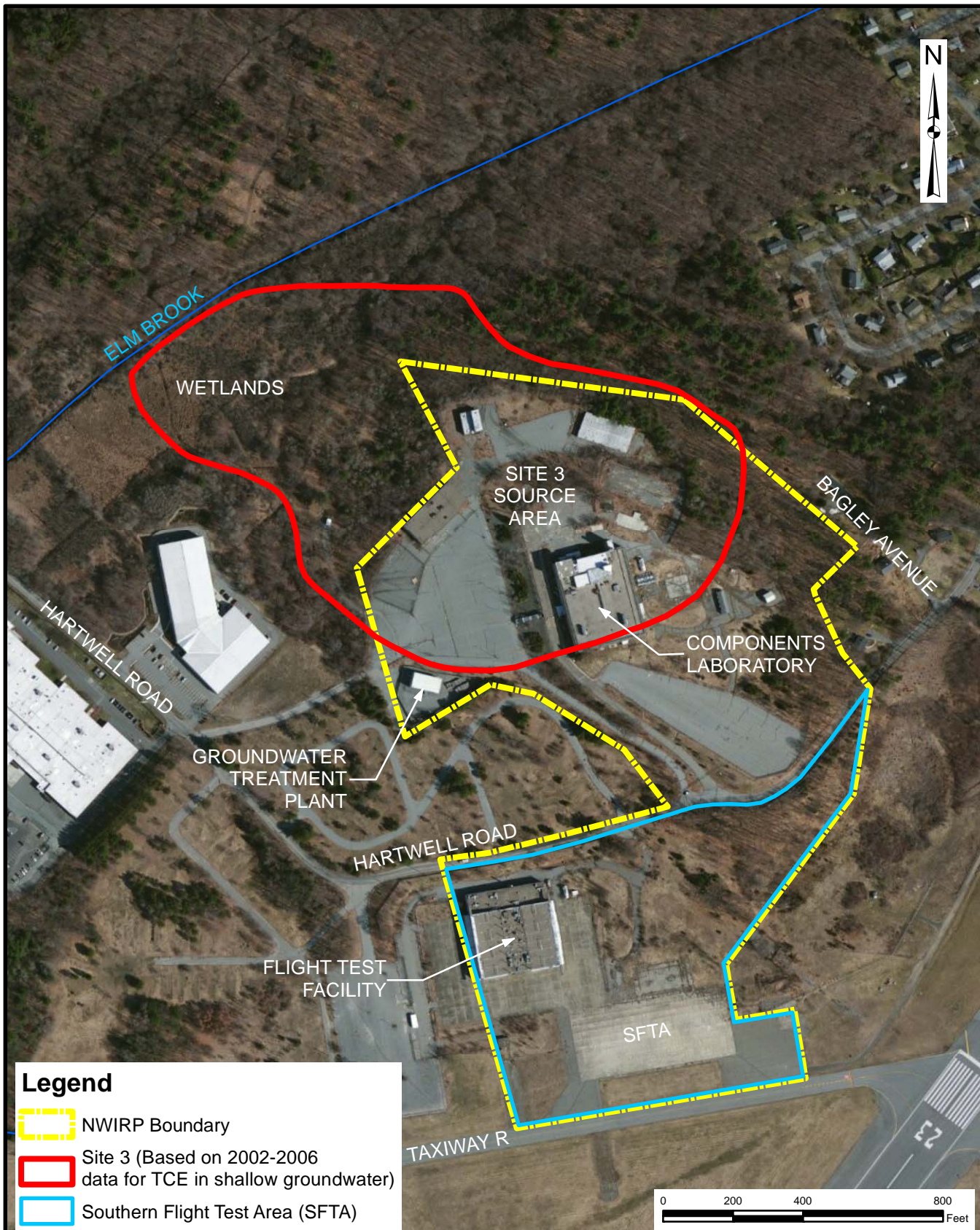
## TABLES

TABLE 1

**SUMMARY OF LAND USE CONTROL (LUC) IMPLEMENTATION ACTIONS  
SITE 3 (CHLORINATED SOLVENT GROUNDWATER PLUME) AND THE SOUTHERN FLIGHT TEST AREA (SFTA)  
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT, BEDFORD, MASSACHUSETTS**

LUC REQUIREMENT/DESCRIPTION	FREQUENCY
<b>INSTITUTIONAL CONTROLS</b>	
Issue LUC RD (newest version).	One Time
Incorporate LUCs into land records documentation with the Town of Bedford, Massachusetts.	One Time
Conduct annual LUC compliance inspections.	Annually (September)
Issue LUC Inspection Report to EPA, MassDEP, the Town of Bedford Board of Health and, if applicable, to the Transferee.	Annually
In case of property transfer, Navy will incorporate LUC requirements and boundary maps into provisions of the deed and ensure they are recorded with the appropriate Registry of Deeds	Per Event
<b>ENGINEERING CONTROLS AND MONITORING REQUIREMENTS</b>	
Conduct groundwater monitoring, as per the approved Sampling and Analysis Plan (SAP).	Semi-annually, or as per the SAP
Prepare and issue Groundwater Monitoring Report.	Per event, or as per the SAP
<b>NOTIFICATION REQUIREMENTS</b>	
Navy must notify EPA and MassDEP of activities that are inconsistent with LUC objectives, restrictions, or effectiveness and how inconsistent activities were/will be addressed.	Per event (10-day post-event awareness required)
Navy will notify EPA and MassDEP and invite comment prior to modifying, terminating, or implementing internal LUC-related policies or procedures if such changes are likely to negatively impact the effectiveness of LUCs.	Per event (14 days prior to implementation of requested change)
Navy will notify EPA and MassDEP of proposals for changes in land use that would be inconsistent with use restrictions and exposure assumptions described in the ROD and the ESD; any anticipated action that may disrupt LUC effectiveness; or, any action that may alter or negate the need for LUCs.	Per event (45 days in advance)
Navy will notify EPA and MassDEP prior to any anticipated transfer out of Navy custody and control, of real property subject to LUCs.	Per event (typical 6 month advance notice, but not less than 60 days)
In the case of property transfer, Navy will provide a copy of the executed deed or transfer documents to EPA Region 1 and the Commonwealth of Massachusetts	Per event

## FIGURES



NAVAL WEAPONS INDUSTRIAL RESERVE PLANT  
BEDFORD, MASSACHUSETTS

## SITE MAP

SITE 3 AND SOUTHERN FLIGHT TEST AREA  
LAND USE CONTROL REMEDIAL DESIGN

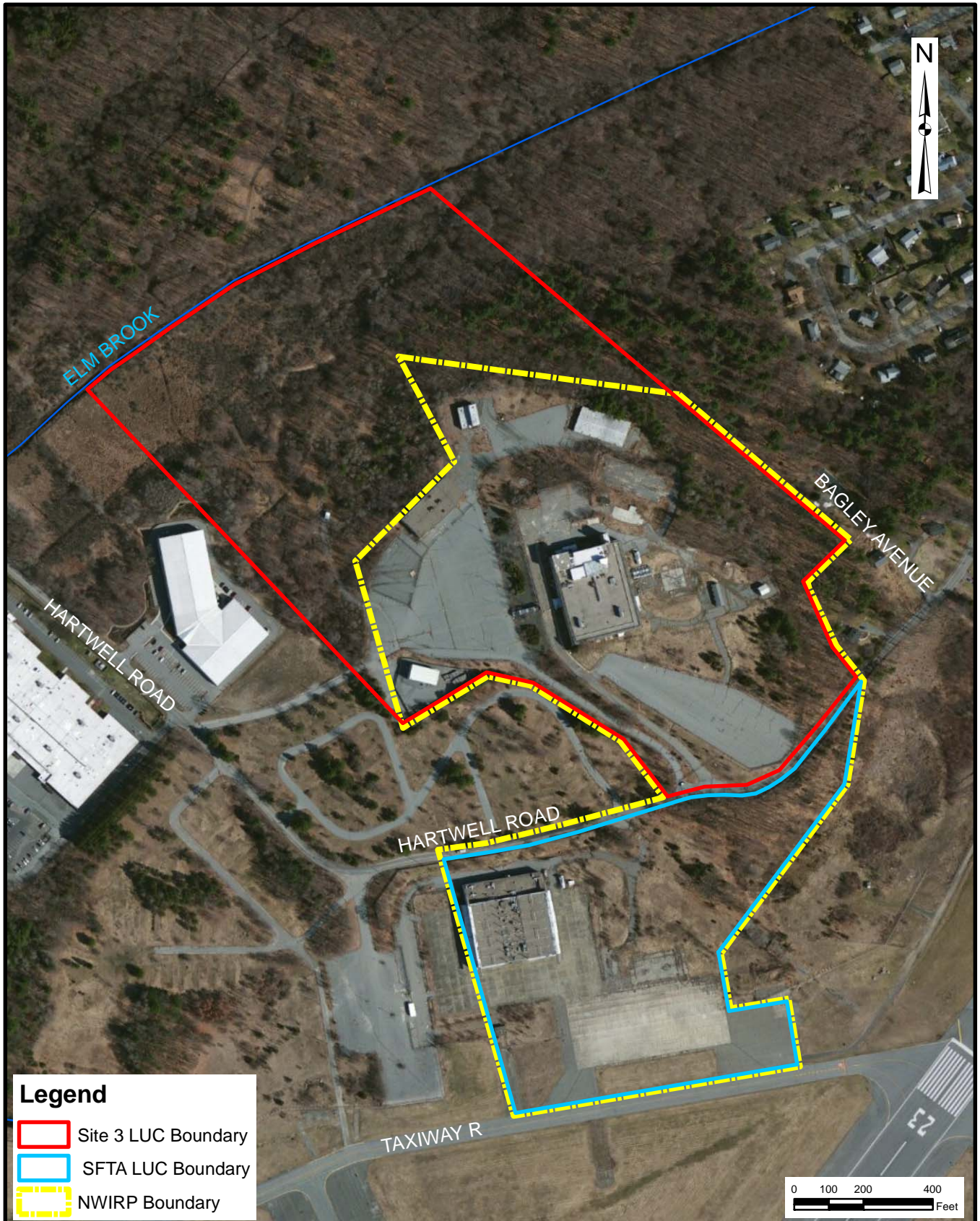
SCALE  
PER SCALE BAR

FILE  
I:\\_NWIRP\_LUCRD  
\_SITE\_MAP.MXD

REV DATE  
0 03/03/14

FIGURE NUMBER  
1





**Legend**

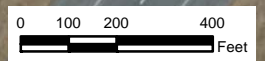
- Site 3 LUC Boundary
- SFTA LUC Boundary
- NWIRP Boundary



NAVAL WEAPONS INDUSTRIAL RESERVE PLANT  
BEDFORD, MASSACHUSETTS

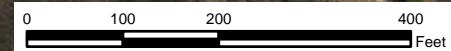
## LUC BOUNDARIES

SITE 3 AND SOUTHERN FLIGHT TEST AREA  
LAND USE CONTROL REMEDIAL DESIGN



SCALE PER SCALE BAR	
FILE I:\...NWIRP_LUCRD _LAND_USE.MXD	
REV	DATE
0	03/03/14
FIGURE NUMBER	
2	





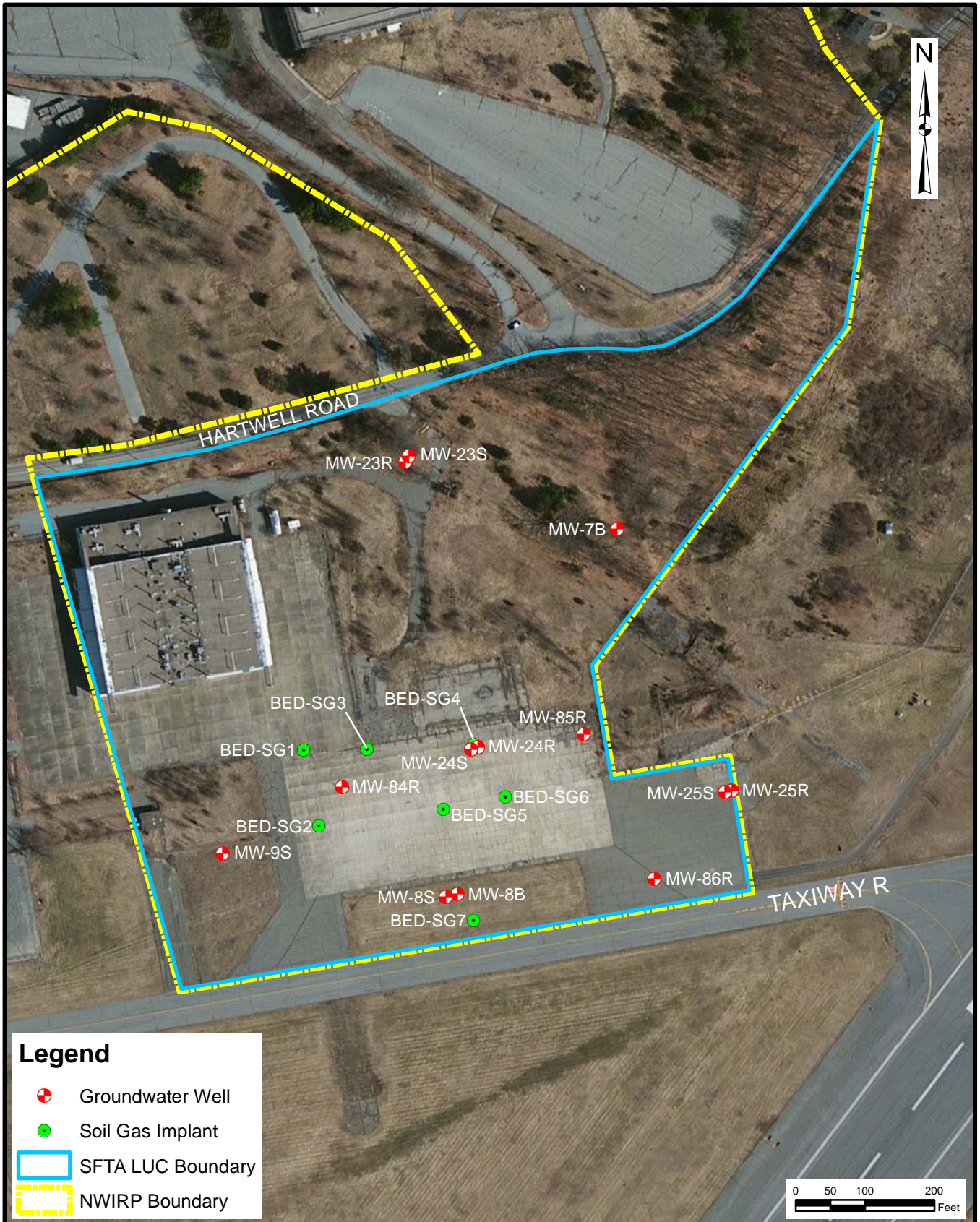
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT  
BEDFORD, MASSACHUSETTS

## SITE 3 REMEDIAL COMPONENTS

## SITE 3 AND SOUTHERN FLIGHT TEST AREA LAND USE CONTROL REMEDIAL DESIGN

FILE	SCALE	
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FIGURE NUMBER	REV	DATE
3	0	03/07/14





## Legend

- Groundwater Well
- Soil Gas Implant
- SFTA LUC Boundary
- NWIRP Boundary



NAVAL WEAPONS INDUSTRIAL RESERVE PLANT  
BEDFORD, MASSACHUSETTS

## SFTA REMEDIAL COMPONENTS

SITE 3 AND SOUTHERN FLIGHT TEST AREA  
LAND USE CONTROL REMEDIAL DESIGN

SCALE  
PER SCALE BAR

FILE  
I:\\_NWIRP\_LUCRD  
\_SFTA\_REMCOMP.MXD

REV	DATE
0	03/03/14

FIGURE NUMBER  
4



## REFERENCES

## REFERENCES

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**APPENDIX A**  
**LAND USE CONTROL INSTRUCTIONS**

## **APPENDIX A.1**

### **COMNAVREG MIDLANT INSTRUCTION 5090.2**



## DEPARTMENT OF THE NAVY

COMMANDER  
NAVY REGION, MID-ATLANTIC  
6506 HAMPTON BLVD.  
NORFOLK, VA 23508-1273

IN REPLY REFER TO:

COMNAVREG MIDLANT  
INST 5090.2  
REG ENG/Code 90

**27 MAY 2003**

### COMNAVREG MIDLANT INSTRUCTION 5090.2

Subj: INSTALLATION RESTORATION; LAND USE CONTROLS AT NAVY  
REGION, MID-ATLANTIC INSTALLATIONS; ESTABLISHMENT AND  
MAINTENANCE

Ref: (a) DUSD (ES/CL) memo of 17 Jan 01  
(b) Navy Environmental Policy Memo 99-02  
(c) Navy-Marine Corps Installation Restoration Manual  
(COMNAVFACEGCOM Feb 97)  
(d) OPNAVINST 5090.1 Series  
(e) COMNAVREGMIDLANTINST 3120.1  
(f) JAGMAN  
(g) NAVREGS

1. Purpose. This instruction prescribes procedures for establishing and maintaining land use controls at sites remediated under the Navy Installation Restoration Program (IRP) and otherwise, and assigns mission, functions, and tasks necessary to successful management and maintenance of land use controls. References (a) through (d) pertain.

2. Applicability. This instruction applies to installations under the custody, control, and command of Commander, Navy Region, Mid-Atlantic (COMNAVREG MIDLANT). Reference (e) pertains.

### 3. Background

a. Land use controls restrict use of, and may also limit access to, real property at which contamination is allowed to remain in place. Land use controls, which are of two types, engineered controls<sup>1</sup> and institutional controls, are placed on IRP (and other) sites to protect human health and the environment until such time, if ever, as they are no longer needed. Engineered controls include fences, signs, and other physical means of regulating access to and use of real property. Institutional controls are legal and administrative restrictions on land use, such as notations on installation land use plans,

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<sup>1</sup>"Engineering controls" is also used in some texts to refer to engineered controls. For purposes of this instruction these terms are synonymous.

27 MAY 2003

notices recorded in public land records, and periodic site inspections.

b. Land use controls, which may be of indefinite duration, must be reviewed at least every 5 years for effectiveness. They are, or are part of, a clean-up remedy accepted by or approved for COMNAVREG MIDLANT by the Regional Engineer, as set forth, for example, in the Record of Decision<sup>2</sup> for an IRP site. After a Record of Decision or other decision document is finalized, terms and conditions for establishing and maintaining land use controls will be developed and memorialized in a Remedial Design (or other document), in the manner Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM) (or other Navy authority) shall recommend. Land use controls may be modified as site conditions change.

c. To be effective, land use controls must be timely imposed, and thereafter maintained for as long as necessary. Long-term maintenance of land use controls requires vigilance, diligence, cooperation, and funding. COMNAVREG MIDLANT, recognizing its role in protecting human health and the environment, has determined that a comprehensive, coordinated approach to land use controls is required for its installations. This approach requires close cooperation between the Regional Engineer, the Regional Program Manager for Facilities and Environmental programs, and LANTNAVFACENGCOM, the IRP program manager.

4. Action. The following action is directed:

a. Regional Engineer

(1) Execute Records of Decision, decision documents, and other land use control related documents on behalf of COMNAVREG MIDLANT.

(a) In so doing, coordinate closely with LANTNAVFACENGCOM, to ensure that operational flexibility, accomplishment of core mission requirements, combat readiness, security, force protection, and cost are taken into consideration in remedy selection.

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<sup>2</sup> Records of Decision are issued under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Land use controls are also imposed in clean-ups carried out under the Resource Conservation and Recovery Act (RCRA).



(2) Implement institutional controls in the manner and within the time prescribed in Records of Decision and other decision documents.

(a) In so doing, program and budget for the cost of maintaining land use controls the responsibility for which has transferred from LANTNAVFACENGCOM to COMNAVREG MIDLANT.

(3) Integrate land use controls into site approval processes, dig permits, infrastructure plans, installation maps, and geographic information systems, and, in the name of COMNAVREG MIDLANT, deny permission to conduct ground-disturbing activity at, make use of, or develop sites in a manner inconsistent with approved land use controls.

(a) In so doing, implement procedures and safeguards to withhold or deny site approval until it has been verified that no land use controls exist, or that the proposed use or development is consistent with existing land use controls, references (c) and (d), and other legal authorities. The site approval process is a key element of the regional program to protect human health and the environment through maintenance of land use controls.

(4) Establish procedures to conduct and budget for site inspections, other monitoring of land use controls, and 5-year reviews, and to notify and interact with regulators.

(5) Retain Records of Decision and other land use control documents for all sites to which this instruction applies.

(6) Inform Installation Commanders, Program Managers, and tenant activities at least annually, of land use controls at their installations and installations at which they conduct operations. This may be accomplished by inviting these parties' attention to a list of land use controls published on the Regional Engineer's website.

(7) Include information on land use controls and compliance obligations in statements of work prepared for facility support contracts and other contracts involving use of or ground-disturbing activity at IRP sites and other locations where land use controls have been imposed.

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(8) Take appropriate steps to preclude ground-disturbing activity by Navy public works personnel (or contractors) that is inconsistent with approved land use controls.

b. Installation Commanders and Regional Program Managers

(1) Observe, adhere to, and publicize to their organizations (and, in the case of installation commanders, tenant activities), land use controls imposed on their installations and installations at which they conduct operations. This is especially important for Navy Family Housing and Morale, Welfare, and Recreation<sup>3</sup> facilities and activities.

(2) Take appropriate steps to preclude land use, site development, and ground-disturbing activity inconsistent with approved land use controls. This includes, but is not limited to, following site approval procedures, adhering to dig permit requirements, and incorporating land use controls into infrastructure plans and host/tenant support agreements.

(a) Commanders of installations not served by Environmental Compliance Departments of the Regional Environmental Group perform the functions assigned to the Regional Engineer in subparagraphs a (1)-(8) of this paragraph.

(3) Include information on land use controls and compliance obligations in statements of work prepared for contracts involving use of or ground-disturbing activity at IRP sites and other locations subject to land use controls.

(4) Report to the Regional Engineer all activity inconsistent with known land use controls and conditions, e.g., failure of an engineered control, which may affect human health or the environment. The Regional Engineer, in turn, will inform the cognizant LANTNAVFACENGCOM Remedial Program Manager.

c. Tenant Activities of COMNAVREG MIDLANT Installations

(1) Observe, adhere to, and publicize to their organizations, land use controls imposed on installations at which they conduct operations.

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<sup>3</sup>The Support Services Program Manager will develop a standard clause for Non-Appropriated Fund Instrumentality contracts that requires contractors to comply with land use controls.



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(2) Take appropriate steps to preclude land use, site development, and ground-disturbing activity inconsistent with approved land use controls. This includes, but is not limited to, consulting the Regional Engineer organization during the site approval process and when applying for dig permits.

(3) Include information on land use controls and compliance obligations in statements of work prepared for contracts involving use of or ground disturbing activity at IRP sites and other locations subject to land use controls.

(4) Report to the Regional Engineer all activity inconsistent with known land use controls and conditions, e.g., failure of an engineered control, which may affect human health or the environment. The Regional Engineer, in turn, will inform the cognizant LANTNAVFACENGCOM Remedial Program Manager.

#### 5. Coordination with LANTNAVFACENGCOM

a. Per reference (d), COMNAVFACENGCOM is responsible for the IRP. LANTNAVFACENGCOM is the NAVFAC component that serves the installations to which this instruction applies. In carrying out its program responsibilities LANTNAVFACENGCOM works with Regional Engineer staff to:

(1) Consider operational flexibility, security, force protection, combat readiness, and maintenance costs in selecting land use controls;

(2) Develop land use controls, including but not limited to:

(a) Engineered and institutional controls;

(b) Remedial Designs and other similar land use control documents; and

(c) 5-year reviews and other long-term management;

(3) Report to the Regional Engineer activity, including performance of contracts supervised by Resident Officers in Charge of Construction, inconsistent with known land use controls, or conditions, e.g., failure of an engineered control, that may affect human health or the environment; and

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(4) Include appropriate clauses in contracts for work to be performed on or affecting sites to which land use controls apply.

6. Oversight. Land use, site development, and ground-disturbing activity inconsistent with applicable land use controls may result in risk to human health and the environment, and may give rise to civil and criminal liability under Federal law. Thus, incidents of this nature should be reported per reference (d), investigated per reference (f), and when warranted, appropriate action should be taken to address personal accountability. Regional Program Managers, Installation Commanders, Commanding Officers, and Officers in Charge should work closely with the Regional Engineer to cooperate with regulatory agencies per reference (g). The Regional Engineer and the Regional Environmental Coordinator staff should be notified promptly of the commencement of any enforcement action related to breach or neglect of land use controls.



G. E. EICHERT  
Chief of Staff

Distribution: [www.cnrma.navy.mil](http://www.cnrma.navy.mil)

## **APPENDIX A.2**

### **COMNAVREG MIDLANT INSTRUCTION 11011.11A**



## DEPARTMENT OF THE NAVY

COMMANDER  
NAVY REGION, MID-ATLANTIC  
1510 GILBERT ST.  
NORFOLK, VA 23511-2737

IN REPLY REFER TO:

COMNAVREGMIDLANTINST 11011.11A

N4/ARE

14 FEB 2011

### COMNAVREG MIDLANT INSTRUCTION 11011.11A

From: Commander, Navy Region, Mid-Atlantic

Subj: SITE APPROVAL REQUIREMENTS AND PROCESS

Ref: (a) OPNAVINST 11000.16A w/CH-1  
(b) NAVFACINST 11010.45  
(c) COMNAVREGMIDLANTINST 5090.2  
(d) NOSSA INST 8020.22  
(e) NAVFAC BMS B-2.1.7-B-2.1.10 Site Approval Processes

Encl: (1) Sample Site Approval Request Letter  
(2) NAVFAC Site Approval Request Form (NAVFAC 11010/31)

1. Purpose. Provide guidance for process and preparation of site approvals in the Navy Region, Mid-Atlantic, Area of Responsibility (AOR).

2. Cancellation. COMNAVREGMIDLANTINST 11011.11.

3. Background. Per reference (a), Regional Commanders are responsible for management of land and facilities in their Regions. Reference (a) stipulates planning documentation will be prepared and submitted, per reference (b). The site approval process is the review of proposed actions that affect or may affect facilities or land located on Navy-controlled land holdings. The site approval review process includes determining if the proposed action is compatible with Mission requirements, natural and man-made constraints, land use, Installation architecture and appearance, Installation master plan or Shore Infrastructure Plan (SIP), sustainable development principles, Environmental Restoration Land Use Controls per reference (c), and all applicable laws and regulations.

4. Policy. Site approval is not required for routine maintenance and routine repair of facilities. Per reference (b), site approval is required for all actions sited on Navy-controlled land holdings, regardless of funding source, for the following situations:

a. Any project or real estate action that will have explosives safety criteria implications associated with ammunitions and explosives, per reference (d).

b. Any project or real estate action that affects, or is affected by, airfield safety criteria.

c. Any project or real estate action that creates or is proposed to be in an area of electromagnetic illumination, or involves electromagnetic transmission.

d. Any project, real estate action, or proposed use of property that proposes changing the functional use of a facility or the land use or physical layout of an area.

e. Any proposed use of property, permanent or temporary, that involves placing or removing a facility or structure.

5. Implementation. The Installation Commanding Officer (ICO) will be responsible for implementation of the site approval process under references (b) and (c). The Installation Public Works Department (PWD) will manage this process on behalf of the ICO. The ICO will be the Approving Official but may choose to delegate this authority to the Public Works Officer.

a. Activities initiating a proposed action will submit a request for site approval cover letter, enclosure (1), signed by the unit commander, or their designated representative, to the responsible ICO (Attn: Public Works Officer). Note: Request Cover Letters are not required if the PWD is self-generating the site approval. The Activity and the PWD Planner will work together to prepare Section A of the Naval Facilities Engineering Command (NAVFAC) Site Approval Request Form, enclosure (2). The PWD will follow the process identified in references (d) and (e). In situations where the Activity does not specify a particular Installation for the site, the request for site approval shall be submitted to the Assistant Regional Engineer (ARE), COMNAVREG MIDLANT. At the discretion of the ARE, site approvals may require review and endorsement by the ARE.

b. Naval Facilities Engineering Command, Mid-Atlantic (NAVFAC MIDLANT) Environmental will identify all of the environmental and National Environmental Protection Act (NEPA) compliance requirements as described in reference (e). In some situations, permits may be required, or an Environmental Assessment (EA) may be required. Final site approval will not be granted until all required NEPA and Clean Air Act (CAA) documentation is completed.

c. In some cases, NEPA documentation is still required when site approval is not (e.g., repair of historic facilities).



d. The PWD will process, track, and maintain a record of all Activity site approvals except as otherwise described in reference (d) for explosive safety site approvals.

e. Relocatable facilities (trailers) require separate endorsement via ARE (OPNAVINST 11010.33C) in addition to the site approval process.

f. Actions involving explosive safety, electromagnetic radiation, waivers to airfield safety criteria, or small arms range surface danger zones require additional action and approval through the applicable authority: Naval Ordnance Safety and Security Activity (NOSSA); Department of Defense Explosive Safety Board (DDESB); Space and Naval Warfare Systems Command (SPAWAR); Naval Air Systems Command (NAVAIR); Commander, Navy Installations Command (CNIC); or Chief of Naval Operations (CNO). These reviews will be coordinated by the PWD Planner. Because of the approval chain, allow additional time (1 to 8 months) for processing.

6. Site approvals are granted based upon the information in the request. The site approval becomes invalid if any of the conditions in the original request materially change.

7. Forms. NAVFAC Site Approval Request Form 11010/31 is supplied by N4, Regional Engineer, as enclosure (2) of this instruction. More detail on the site approval process and Site Approval checklists can be found in references (d) and (e). Environmental Checklists vary by State and can be provided by the Public Works Department at the Installation.

  
G. E. WOMACK  
Chief of Staff

Distribution: Electronic only, via CNIC Web site/COMNAVREG  
MIDLANT: <https://g2.cnlic.navy.mil/cnichome/pages/cnichome.aspx>

COMNAVREGMIDLANTINST 11011.11A  
1 4 FEB 2011

**SAMPLE SITE APPROVAL REQUEST LETTER**

11011  
Code

From: (Activity Head)  
To: Commanding Officer, -----  
(Attn: Public Works Officer)

Subj: REQUEST FOR SITE APPROVAL FOR \_\_\_\_\_

Ref: (a) NAVFACINST 11010.45

Encl: (1) NAVFAC Site Approval Request Form (NAVFAC 11010/31)

1. Per reference (a), enclosure (1) is forwarded for your review/approval. Requesting site approval to (briefly explain).
2. In addition to completing site approval, request the required National Environmental Policy Act (NEPA) documentation be initiated and completed to allow this project to be executed.
3. My point of contact for this project is (name) at (commercial and DSN phone number), or (E-Mail-----).

SIGNATURE  
BLOCK

**SAMPLE**

Enclosure (1)

## REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (NAVFAC MIDLANT REV. 8-2009)

**PART I**

## DIRECTIONS IN NAVFACINST 11010.45

**SECTION A – INSTALLATION SUBMISSION**

1. To:			2. From:		
3. Program Year:	4. Cost (\$000):	5. Type Funding	6. Activity UIC	7. Date:	
8. Category Code and Project Title:				9. Project Number	
10. Type of Project: <input type="checkbox"/> New Construction <input type="checkbox"/> Relocation of Structure <input type="checkbox"/> Other <input type="checkbox"/> Change Use <input type="checkbox"/> Maintenance and/or Repairs <input type="checkbox"/> Addition to Existing Facility <input type="checkbox"/> Repair by Replacement <input type="checkbox"/> Major Modification to Existing Facility <input type="checkbox"/> Demolition			11. Type of Request: <input type="checkbox"/> Airfield Safety Site Approval <input type="checkbox"/> Explosives Site/Safety Certification <input type="checkbox"/> EMR Site Approval <input type="checkbox"/> Re-submittal or Standard Site Approval (No Safety Criteria Involved)		
12. Project Description					
13. _____ Sets of Project Maps Attached			14. _____ Sets Part II Division(s) _____ Attached		

**SECTION B –NAVFAC REVIEW**

1. Name/Code/Phone No. of Reviewer/E-Mail Address:			2. Date Received:		
3. Evaluation:					
4. Safety Review Requested: (check appropriate box(es)) <input type="checkbox"/> NOSSA <input type="checkbox"/> DDESB <input type="checkbox"/> SPAWAR <input type="checkbox"/> NAVAIR <input type="checkbox"/> CNO <input type="checkbox"/> OTHER					5. Date Forwarded:
6. Date of Safety Certification:    _____ NOSSA    _____ DDESB    _____ SPAWAR    _____ NAVAIR    _____ CNO    _____ OTHER					

**SECTION C – FINAL SITE APPROVAL ACTION**

1. Approvals: <input type="checkbox"/> Site Approved <input type="checkbox"/> Site Disapproved <input type="checkbox"/> Deferred/Returned <input type="checkbox"/> Explosives Safety Certification Approved <input type="checkbox"/> Explosives Safety Certification DISAPPROVED <input type="checkbox"/> Interim Construction Waiver Approved		2. Certification Identification:  3. Remarks	
4. Other Approvals <input type="checkbox"/> Airfield Safety Waiver Required Required <input type="checkbox"/> Final Explosives Safety Review Required		5. Approving Official:  6. Date:	



## **APPENDIX B**

### **LAND USE CONTROL ANNUAL COMPLIANCE INSPECTION CHECKLISTS**

**Land Use Control (LUC) Inspection Checklist**

**Site 3 - Chlorinated Solvent Groundwater Plume**

**Naval Weapons Industrial Reserve Plant (NWIRP) Bedford, Massachusetts**

**Site Description:**

Site 3 is located in the northern portion of NWIRP Bedford by the Components Laboratory and the plume migrates in a primarily west/northwesterly direction across NWIRP Bedford and into an off-property (private property) wetland area. The LUC boundary and detail map for Site 3 are shown on Figures 2 and 3 of the LUC Remedial Design (RD).

**Documentation Questionnaire:**

- 1 Is the complete updated LUC RD (latest version) available on file with the Navy, and if applicable, with the current owner (Transferee)? (If no, explain below.)
2. Is it correct that there are no EPA or MassDEP notifications on file regarding the following items? (if notifications were issued, then mark "no" and explain below):
  - 2a. Activities inconsistent with LUCs
  - 2b. Corrective actions regarding activities inconsistent with LUCs
  - 2c. Changes in procedures affecting LUCs
  - 2d. Proposed land use changes
  - 2e. Proposed transfer or sale of the site property
- 3a. Has the LUC RD documentation provided to the Town of Bedford Board of Health been reviewed?
- 3b. Is the LUC RD documentation provided to the Town of Bedford Board of Health up to date?

Yes	No


**Inspection Questionnaire:**

4. Is the area free of any indication of a recently installed groundwater extraction well? (includes drinking water and irrigation wells) If no, mark the location of the well on the site map and describe below.
5. Are the Navy's monitoring wells, extraction wells, and injection wells in good condition? (e.g., undamaged casing/road box, properly closed/locked)? If no, describe the conditions and mark the location(s) on the site map.
6. Are the buildings onsite free of any indication of human occupancy? If no, describe below.
7. Is the area free of any indication of new land development? If no, describe below.
8. Is the area free of any indication of land use that is not consistent with the Site 3 Record of Decision (ROD), the Explanation of Significant Differences (ESD) to the ROD, and the LUC RD? If no, describe below.

Yes	No

**Comments:** (Provide related question number for each comment. Attach more pages if needed.)

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**Recommendations:** (Include any suggested improvements to this form)

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**Navy Annual Certification:**

I hereby certify that a complete and thorough inspection and an evaluation of compliance with land use controls established for Site 3 in accordance with the 2010 Record of Decision and its 2014 Explanation of Significant Differences, have been performed and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedial action objectives for the site.

Navy Representative

Title

Signature

Date

**Onsite Inspection Team Roster:**

Lead Inspector

Title/Affiliation

Signature

Date of Inspection

**Others Present:**

Name

Affiliation

Name

Affiliation

Name

Affiliation

Name

Affiliation

**Land Use Control (LUC) Inspection Checklist**

**Southern Flight Test Area (SFTA)**

**Naval Weapons Industrial Reserve Plant (NWIRP) Bedford, Massachusetts**

**Site Description:**

The SFTA is located in the southern portion of NWIRP Bedford, south of Hartwell Road. The LUC boundary and detail map for the SFTA are shown on Figures 2 and 4 of the LUC Remedial Design (RD).

**Documentation Questionnaire:**

- 1 Is the complete updated LUC RD (latest version) available on file with the Navy, and if applicable, with the current owner (Transferee)? (If no, explain below.)
- 2 Is it correct that there are no EPA or MassDEP notifications on file regarding the following items? (if notifications were issued, then mark "no" and explain below):
  - 2a. Activities inconsistent with LUCs
  - 2b. Corrective actions regarding activities inconsistent with LUCs
  - 2c. Changes in procedures affecting LUCs
  - 2d. Proposed land use changes
  - 2e. Proposed transfer or sale of the site property
- 3a. Has the LUC RD documentation provided to the Town of Bedford Board of Health been reviewed?
- 3b. Is the LUC RD documentation provided to the Town of Bedford Board of Health up to date?

Yes	No


**Inspection Questionnaire:**

4. Is the area free of any indication of a recently installed groundwater extraction well? (includes drinking water and irrigation wells) If no, mark the location of the well on the site map and describe below.
5. Are the Navy's monitoring wells in good condition? (e.g., undamaged casing/road box, properly closed/locked)? If no, describe the conditions and mark the location(s) on the site map.
6. Is the area free of any indication of new land development? If no, describe below.
7. Is the area free of any indication of land use that is not consistent with the Explanation of Significant Differences (ESD) to the Site 3 Record of Decision (ROD) and the LUC RD? If no, describe below.

Yes	No

**Comments:** (Provide related question number for each comment. Attach more pages if needed.)

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**Recommendations:** (Include any suggested improvements to this form)

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**Navy Annual Certification:**

I hereby certify that a complete and thorough inspection and an evaluation of compliance with land use controls established for the SFTA in accordance with the 2010 Record of Decision and its 2014 Explanation of Significant Differences, have been performed and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedial action objectives for the site.

\_\_\_\_\_  
Navy Representative Title

\_\_\_\_\_  
Signature Date

**Onsite Inspection Team Roster:**

\_\_\_\_\_  
Lead Inspector Title/Affiliation

\_\_\_\_\_  
Signature Date of Inspection

**Others Present:**

\_\_\_\_\_  
Name Affiliation

\_\_\_\_\_  
Name Affiliation

\_\_\_\_\_  
Name Affiliation

\_\_\_\_\_  
Name Affiliation